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Agriculture.

Farmers themselves can solve agriculture's present dilemma. By C.S. Burton. Magazine of Wall Street. v. 51, no. 4. December 10, 1932. p. 199-201, 231-234. Salvation lies in intense individual effort.

Federal loan of \$100,000,000 would restore farming prosperity. By Horace Bowker. Fertilizer Green Book. v. 13, no. 10. October 1932. p. 7-10. Sole and specific purpose of enabling farmers to buy fertilizer. Reasons: 1. Self-liquidating in 6 months. Fertilizer normally pays \$2 or \$3 in increased yield for every \$1 invested. 2. Provides income for its own retirement. 3. Immediate increase in purchasing power. 4. Provides farmer with relief based upon sound economics. 5. Comes at time when further decline of 20 per cent in fertilizer consumption is forecast.

Air conditioning.

Air conditioning a residence with district steam. By W. H. Rudisill. Heating and Ventilating. v. 29, no. 12. December 1932. p. 39-41.

Health aspects of air conditioning: Editorial. Electrical World. v. 100, no. 24. December 10, 1932. p. 779. Influence of clean air and of air balanced in interiors against exterior air as to temperature and humidity undoubtedly is effective against colds, respiratory organ irritations and other disturbances that come from exposure to dirty air and shocks to membranes in going from interior air condition to exterior.

Method for selecting outside weather conditions for air conditioning design. By H. W. Skinner. Heating and Ventilating. v. 29, no. 12. December 1932. p. 23-25.

Relation of climate to air conditioning design. By Otto W. Armspach. Heating and Ventilating. v. 29, no. 12. December 1932. p. 26-29. Outdoor conditions as basis for design; Effect of refrigerating capacity; Effect on dehumidified air required; Effect on cold water temperature; Effect of air supply temperature; Evaporative comfort cooling.

Residence cooling with fans. By S.S. Sanford. Electrical World. v. 100, no. 22. November 26, 1932. p. 735.

Summer cooling for comfort as affected by solar radiation. By G.A. Hendrickson and J.H. Walker. Heating and Ventilating. v. 29, no. 11. November, 1932. p. 14-21. Factors influencing intensity of sun radiation; Calculation of radiation intensity; Explanation of tables.

Bearings.

Prediction of bearing performance. Lubrication. v. 18, no. 12. December 1932. p. 133-144. Study of problems involved. Research work at Pennsylvania State College. Purpose of developing means for practical application of earlier investigations involving theoretical pressure distribution, coefficient of friction and journal running position.

Belts.

Transmission of power. By "Loadfactor". Ice and Cold Storage. v. 35, no. 416. November 1932. p. 199-200. Some notes on forces that act on belt and behavior of belting at high speeds.

Colorado river.

From Colorado river compact to the closure of Black Canyon. Engineering News Record. v. 109, no. 24. December 15, 1932. p. 701-705. Tracing major factors in carrying forward gigantic engineering enterprise from ten year struggle of seven basin states to successful diversion of river.

Huge blast turns river into diversion tunnels. Engineering News Record. v. 109, no. 24. December 15, 1932. p. 708-709. Blowing out of barriers at tunnel portals was followed by rapid damming of channels by truck dumping.

Cotton.

Lower cotton cost with power equipment. Farm Implement News. v. 53, no. 35. December 22, 1932. p. 18. No retrogression during 1932 in use of power by Delta cotton planters according to J.O. Smith, agricultural engineer of Delta Experiment Station. Estimates that power has been used to make crops on 32 per cent of land on Delta in 1932 as compared to 24 per cent in 1931. Operating costs on five tractor operated plantations in 1931 averaged \$16.45 per cotton acre 40 per cent less than operating costs of five tenant operated plantations.

Dairy equipment.

New method of milk production. By James L. Strahan. Agricultural Engineering. v. 13, no. 12. December 1932. p. 313-316.

Use of water bowls in the dairy barn. By C. Y. Cannon, E.N. Hansen and James R. O'Neal. 1932. 103-114.p. Iowa. Agricultural Experiment Station. Bulletin no. 292.

Dams.

Arizona publishes a code for guidance in building dams. Engineering News Record. v. 109, no. 26. December 29, 1932. p. 771-772. Foundations and spillways; Arch dams; Concrete; Earth dams; Gravity concrete dams; Rockfill dams. Editorial p. 788.

Construction of Thief Valley dam. By Clifford A. Betts. Reclamation Era. v. 23, no. 12. December 1932. p. 194-196.

Dams. (Cont'd)

Permanent cofferdams to be large earth-rock fills. Engineering News Record. v. 109, no. 24. December 15, 1932. p. 709-711. Design and construction method described. Plans for unwatering outlined.

Drainage.

Drainage of land overlying an artesian ground-water reservoir: Progress report. By O.W. Israelsen and W.W. McLaughlin. 1932. 53p. Utah Agricultural Experiment Station. Bulletin no. 242.

Electric service, rural.

Electrical design of rural lines. By E. V. Sayles. Electrical World. v.100, no. 26. December 24, 1932. p. 860-862.

Electrification progress. New England Homestead. v. 105, no. 10. November 12, 1932. p. 7. Power is extended to approximately 500 additional farms each year in Vermont and New Hampshire.

New rural service plan studied in Illinois. Electrical World. v. 100, no.19. November 5, 1932. p. 612. Under proposed scheme, company would pay cost of constructing power line on farmer's property up to 300 ft. from public highway providing farmer chooses to place himself under \$9 month minimum rate. If farmer lives more than 300 ft. from road, he would pay for erecting required additional distance.

Rural electrification rates and policies. By Ben H. Nichols. Electrical World. v. 100, no. 25. December 17, 1932. p. 819-821. Survey of rate schedules, returns and investment data pertinent to rural load building discloses current methods by which utilities are improving value of their services to farmer.

Why the regional farm load deserves cultivation. By W. T. Ackerman. Electrical World. v. 100, no. 22. November 26, 1932. p. 727-728. Investment by agriculture in wiring and lighting fixtures; Cost of farm electric service in New England; Rural load-building opportunities in one region; Increasing farm density favors economic service.

Electricity in the home.

What home owners want. Electrical World. v.100, no. 27. December 31, 1932. p. 887-891. Results of survey conducted by Westinghouse Lamp Company. Purpose - Attitude of occupant toward artificial light, for decoration and health; buying habits and cost of lighting.

Electricity on the farm.

Experiences with electric soil heating in western New York. By Morris Lloyd. Electricity on the Farm. v. 6, no.1. January 1933. p. 7-9.

Ultra-violet rays for poultry. Rural Electrification and Electro-Farming. v. 8, no. 90. November 1932. p. 180. Results of tests conducted by Missouri Public Service Company.

Erosion control.

Wealth that washes away. Arizona Producer. v. 11, no. 18. December 1, 1932. p. 4. Soil erosion problem and loss of run-off water becomes serious in Arizona.

Evaporation.

Evaporation as a process of reclamation and prevention of stream pollution. By H.O. Chute. Water Works and Sewerage. v. 79, no. 12. December 1932. p. 427-429.

Factors affecting the design of evaporators. By Herman Vetter. Refrigerating Engineering. v. 24, no. 6. December 1932. p. 348-351. Direct expansion evaporator; Flooded type evaporators; Shell and tube brine cooler; Heat transfer.

Fans, Mechanical.

Choosing a multi-V drive for a fan.- Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 615-616.

Fan testing and performance as influenced by inlet duct. Power. v. 76, no. 7. Mid-December 1932. p. 342-343. Effect of pulsation on fan test procedure; Influence of bends on performance of fans; Test codes.

Farm machinery and equipment.

Combine reel for harvesting peas. By E.N. Humphrey. Agricultural Engineering. v. 13, no. 12. December 1932. p. 316-317. Developed in agricultural engineering shops at University of Idaho. Revamped side delivery rake reel by increasing length of reel arms and rake bars to suit header platform, rising same eccentric casting for new reel simply by lengthening arms and connecting rods. Slow movement and open construction allows use of light weight materials and permits clear view of header platform, and cutter bar by operator. Tines are dependent. It is possible, through lever action to change eccentric which controls tines so that they may be tilted either forward or backward. Another reel using practically same principle has been developed. Tines are likewise dependent and can be adjusted to any angle or turned completely over, so that same reel may be used for peas and wheat. Activating mechanism of reel consists of stationary sprocket mounted on drive end at center of reel around shaft. Small sprocket wheels with same diameter as center sprocket are placed at end of each blade. Chain runs over center sprocket to blades diametrically opposite as reel revolves, blade revolve at same time which maintains rake tines in parallel planes.

Economic aspects of farm mechanization. By Arnold P. Yerkes. Agricultural Engineering. v. 13, no. 12. December 1932. p. 307-312. While farmer with modern machinery is able to effect tremendous saving in human labor, behind him is vast army of workers which has made it possible-through great array of machine, implements, materials, and services which those workers have produced--for him to achieve greater efficiency and economy in his farming operations, and therefore larger profits. Before any labor-saving machine can save an hour of labor, labor must be expended upon it and wages paid to produce it.

Farm machinery and equipment. (Cont'd)

Peering at trends and developments in machine design from the editorial sidelines. Farm Implement News. v. 54, no. 1. January 5, 1933. p. 14-15.

Fences.

Comparative details -- Fences and gates. Fencil Points. v. 13, no. 11. November 1932. p. 757-764.

Fertilizer spreaders.

New vision of spreader value. Farm Implement News. v. 53, no. 35. December 22, 1932. p. 10-11. One might be justified in saying that no item of farm equipment this industry ever produced has within itself such profit-making possibilities as the manure spreader.

Fertilizers.

Fertilizers for sweet potatoes based on investigations in North Carolina. By J. J. Skinner, C. B. Williams, and H. B. Mann. 1932. 46p. U.S. Department of Agriculture. Technical paper no. 335.

Must mix wisdom with fertilizers. By W. L. Powers. Oregon Farmer. v. 55, no. 23. December 8, 1932. p. 3. Efficiency of inorganic fertilizers will depend upon (1) thorough drainage, (2) adequate moisture supply, (3) good tilth, (4) presence of organic matter, (5) control of soil reaction, (6) presence and conditions favorable for beneficial soil organisms, (7) season, (8) good seed, (9) suitable cultural practices.

Fire protection.

Farm water systems and fire control. By E. T. Leavitt. Northwest Farm Equipment Journal. v. 46, no. 12. December 1932. p. 27. For less than 20 cents per day, farmers were pumping water directly into houses and barns.

Rural fire waste in Iowa, 1930-31. By Henry Giese and Earl D. Anderson. 1932. 223-258p. Iowa Agricultural Experiment Station. Bulletin no. 296.

Flow of water and gases.

Determining minimum air velocities for exhaust systems. By J. M. Dallavalle. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 639-641. Systematic investigation of velocities required to move particles of specified size and density through horizontal and vertical ducts.

Forage drying.

Haying in the rain. By F. W. Duffee. Farm Journal. v. 57, no. 1. January 1933. p. 6. Artificial drying makes possible not only superior product, but longer haying season, equalization of labor, curing of plants otherwise impossible to cure, use of wastes, prevention of leaf loss and loss due to fermentation. Makes possible hay of definite specifications.

Frost protection.

Electric heat for trees. Arizona Producer. v. 11, no. 181. December 1, 1932. p. 2. Wires strung overhead and light socket dropped by each trunk.

Hay.

Cost of producing hay on Nevada range cattle ranches. By C.A. Brennen. 1932. 14 p. Nevada Agricultural Experiment Station Bulletin no. 129.

Heat transmission.

Heat transmission from metal surfaces to boiling liquids. By D.S. Cryder and E.R. Gilliland. Industrial and Engineering Chemistry. v. 24, no. 12. December 1932. p. 1382-1387. Effect of physical properties of boiling liquid on liquid film coefficient.

Heating.

Heating by forced hot water. By H.H. Angus. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 642-644. Advantages; Pumps and motive power; Boilers for hot water systems; Heating surface and water temperatures; Piping layout; Freezing of water in radiators; Repairs; Comparative costs; Adaptation to fluctuating conditions.

House heated by pump with 5 to 1 pick-up ratio. By Gilbert Wilkes and R.E. Marbury. Electrical World. v. 100, no. 25. December 17, 1932. p. 828-831. Reversed refrigeration cycle. Many problems yet to be solved before this type of equipment becomes commercial.

Refrigerator to heat home by throwing switch. Popular Mechanics. v. 58, no. 1. July 1932. p. 43. For summer operation, apparatus is supplied with cold water from evaporator, while condenser is cooled by water from cooling tower. When heat is required, equipment is supplied with warm water from condenser, while evaporator gets warm water from cooling tower. Switch controls electrically operated valves in piping system, to which is connected air-conditioning machinery.

Saves fuel by equalizing flow in hot water heating systems. By Erwin L. Weber. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 609.

Steam meters in the heating system. By Fred G. Austin. Heating and Ventilating. v. 29, no. 12. December 1932. p. 35-38. Development. Types. How they work. Selecting a meter. Installation. Maintenance.

Hotbeds.

Starting plants under glass. By Richard M. Riley. 1932. 11 p. Maine College of Agriculture. Extension Service. Bulletin no. 206.

Houses.

Ceramics and the program of fabricated houses. By G. A. Bole. Engineering Experiment Station News. Ohio State University. v. 4, no. 4. December 1932. p. 7-8. Practically all parties are thinking in terms of metal frame construction or else crimped metal erected without frame. Sheet metal exterior presupposes good insulating back-up and pleasing interior finish.

Houses. (Cont'd)

Fabricated houses open new possibilities in home building. Heating and Ventilating. v. 29, no. 11. November 1932. p. 39-43. Two methods: 1. Build standardized houses in factory. 2. Standardize parts.

Most unusual brick house designed for century of progress. Brick and Clay Record. v. 81, no. 6. December 1932. p. 196-197. Ultra-modern house of common brick with interior walls of brick and reinforced brick masonry used extensively to sell at \$5,000.

Reinforced brickwork cuts home building cost. American Builder. v. 54, no. 2. November 1932. p. 28-29. Saving of 1-6/10 cents per square foot of wall as compared with common brick veneer, was achieved by new reinforced hollow brickwork method on Detroit Firemen's Fund House. 36 cents per square foot was total cost of 8-inch hollow reinforced brick walls above first floor, complete with two coats of waterproofing and lime-finished plaster direct to inner face of brick wall. Ordinary common brick veneer figured 37.6 cents.

Standards for farm housing. Commercial Standards Monthly. v. 9, no. 6. December 1932. p. 136.

Hydraulics.

Flow measurements and design dominate hydraulic session. Power. v. 76, no. 7. Mid-December 1932. p. 339-340. Theories of pump and hydraulic turbine design advanced, description of world's largest outdoor hydraulic laboratory (where flows of 141 sec.-ft. and volumetric measurements up to 52,900 cu.ft. are provided) and study of flow of fluids in pipes.

Insect control.

Economic control of insects. By W. C. Krueger. Agricultural Engineering. v. 13, no. 12. December 1932. p. 317. Methods: 1. Development of crop resistance, 2. Control of parasites. 3. Control by chemicals, 4. Control by mechanical means. Ultimate choice of any specific method will be determined by balancing its effectiveness against cost.

Electrified screen for auto kills grasshoppers. Popular Mechanics. v. 58, no. 1. July 1932. p. 44. Fly against electrically charged screen. Another weapon consists of tank filled with water or kerosene and equipped with bumper board against which hoppers fly and then drop into tank.

Killing grubs by electricity. Rural Electrification and Electro-Farming. v. 8, no. 90. November 1932. p. 178. Experiments conducted at Pathological Station at Aarlsmeer and Plant Pathological laboratory of Ministry of Agriculture and Fisheries.

Insulation.

Insulating your home. 1932. 5p. American Home. Reader's leaflet service. Bulletin no. 108. Insulating boards; Blankets or quiltings; Felts; and Fills.

Irrigation.

Actual beneficial use of water by citrus trees. By G. E.P. Smith. Arizona Producer. v. 11, no. 19. December 15, 1932. p. 3.

Bids called for irrigation project on Euphrates river in Iraq. Engineering News-Record. v. 109, no. 26. December 29, 1932. p. 791. Project is estimated to cost about \$6,000,000. Will protect lands of lower Euphrates from undue floods in spring, and gives cultivators of central Iraq assurance of more water for their crops in late summer when supplies are usually scanty.

Cost of irrigation water in California. By Harry F. Blancy. 1932. 8p. Multigraphed. Abstract of State of California Department of Public Works. Bulletins no. 8 and 36.

Flower seed firm adopts overhead irrigation. California Cultivator. v. 79, no. 24. December 10, 1932. p. 375. Two acre set-up sufficient to irrigate ten acres in 12 hours.

Ground water put to use. Oregon Farmer. v. 55, no. 23. December 8, 1932. p. 5. Carried by tile down slope to irrigate fields.

Irrigation in California. 1932. 1p. California State Chamber of Commerce. Research department. Economic survey report no. 12.

Is the soil moisture stationary? By G.E.P. Smith. Arizona Producer. v. 11, no. 18. December 1, 1932. p. 3. Heavy irrigation carries away nitrate plant foods. Quantity utilized by crops much less than quantity applied by irrigator.

Legislation for California irrigation districts planned. Engineering News Record. v. 109, no. 26. December 29, 1932. p. 792. To relieve financial situation in irrigation districts. Plan proposed would be in form of lending State credit for refinancing of irrigation and reclamation districts.

Rehabilitation of distressed irrigation districts. By W. P. Stapleton. Reclamation Era. v. 23, no. 12. December 1932. p. 191-193.

Land.

Land utilization in Lawrence County, Ohio. By J.H. Sitterley, H.R. Moore and J.I. Falconer. 1932. 48 p. Ohio Agricultural Experiment Station. Bulletin no. 514.

Land utilization program. Implement and Tractor Trade Journal. v. 47, no. 26. December 17, 1932. p. 21. 1. Better economic utilization of land resources. 2. Control of erosion. 3. Provision for future timber and public recreation needs. 4. Preservation of wild life. 5. Gradual diversion to other purposes of lands submarginal for farming. 6. Guidance of proper enterprises in land settlement. 7. Important adjustments in governmental organization in distribution of local institutions and in local taxation and expenditures.

Lubricating oils.

Gravity index for lubricating oils. By W. B. McCluer and K.R. Fenske. Industrial and Engineering Chemistry. v. 24, no. 12. December 1932. p. 1371-1374. Gravity index has been found particularly well suited for classification of light-oil fractions where relatively small viscometry errors cause appreciable change in viscosity index.

Lubricating oils. (Cont'd)

Relationship between mole fractions and absolute viscosities of blended lubricating oils. By E.R. Epperson and H.L. Dunlop. Industrial and Engineering Chemistry. v. 24, no. 12. December 1932. p. 1369-1374. Mean molecular weights of ten fractions of lubricating oils have been determined by cryoscopic method and checked by means of three solvents - benzene, nitrobenzene and ethylene bromide. Method for prediction of viscosity for blended oils from mean molecular weights is indicated.

Miscellaneous.

Biennial report of Division of Agriculture. 1930-31 and 1931-32. 1932. 40p. South Dakota State College of Agriculture and Mechanic Arts. Agricultural Engineering Department. p. 10-11.

Business must pay attention to government. By Dr. Charles E. Merriam. Illinois Journal of Commerce. v. 14, no. 5. May 1932. p. 8-9, 26-27. Advocates encouragement of organization and training of responsible governing officials and reorganization of governmental units and departments in such manner as to prevent great wastes of overlapping and duplication. Can not too strongly emphasize judgment that unless we are willing to give to governmental service higher rank and standing in American social life, we must continue to pay extravagant rates for what we get.

Forty-fifth annual report for fiscal year 1931-32. 1932. 64 p. Colorado Agricultural Experiment Station. Report of irrigation engineer. p. 54-57.

Forth-fifth annual report of South Carolina Experiment Station of Clemson Agricultural College. 1932. 139 p.

Report. 1932. 63p. Michigan Agricultural Experiment Station. Agricultural engineering. p. 5-7.

Technocracy. Business Week. no. 171. December 14, 1932. p. 16-17, 20. Little about technocracy is specific or clear, but it does seem plain that from an interesting, ambitious, and possibly valuable research project some of its spokesmen with a taste for the dramatic are drawing conclusions that will hardly stand analysis.

Uncle Sam, showman. By Harry S. New. Commerce. v. 29, no. 12. January 1933. p. 15-16, 35-36. What the government will do in 1933 Fair. Motif is presentation of scientific discoveries and improvements in living conditions of people of earth during last one hundred years.

Motors.

Rewinding small motors. By Daniel H. Braymer and A.C. Roe. 2d edition. N.Y. McGraw-Hill Book Company, Inc., 1932. 263 p. Practical details of repair shop practice with step-by-step procedure for rewinding all types and designs of fractional horsepower direct and alternating current motors.

Nozzles.

Central station engineers analyze tube strength - flow nozzles. Power. v. 76, no. 7. Mid-December 1932. p. 337. Resume of papers given at A.S.M.E. annual meeting.

Nozzles. (Cont'd)

Central station engineers analyze tube strength - flow nozzles. Power. v. 76, no. 7. Mid-December 1932. p. 337. Resume of papers given at A.S.M.E. annual meeting.

Flows and plowing.

Electric ploughing. Electrification and Electro-Farming. v. 8, no. 91. December 1932. p. 210-212. New modifications in design introduced by Major McDowall.

Poultry houses.

Brooding chicks. By Harold Canfield. 1932. 8p. Missouri College of Agriculture Cooperative extension work in agriculture and Home Economics. Circular no. 295.

Poultry house floor. By Roy H. Waite. 1932. 78p. Maryland Agricultural Experiment Station Bulletin no. 334.

Power.

Electric power costs in selected cities. 1932. 7p. Multigraphed. California State Chamber of Commerce, Research department.

Pumps and Pumping.

Economic replacement of pumping equipment. By A.P. Binder. Water Works and Sewerage. v. 79, no. 12. December, 1932. p. 430-432.

Radiation.

Calculating radiation by use of charts. By Lawrence Corlett. Heating and Ventilating. v. 29, no. 12. December 1932. p. 17-19. Charts used to compute heat loss through outside walls, floors, ceilings, roofs, inside partitions, windows, and heat loss due to infiltration of air into room through outside windows or doors.

Refrigeration.

Automatic control of refrigeration. By H. T. Lange and A.B. Schellenberg. St. Louis, Alco Valve Company, 1932. 98p.

Lloyd's register and refrigerated railway cars. By T. Todd. Ice and Cold Storage. v. 35, no. 416. November 1932. p. 201-202. Some information concerning nature of tests recommended, together with notes on different surveys.

Refrigerated railway car in Argentina. Ice and Cold Storage. v. 35, no. 416. November 1932. p. 196-198. Description of Lightfoot - stone system of mechanical refrigeration, together with trials carried out on Buenos Aires and Pacific railway.

Refrigeration - Air Conditioning. Power. v. 76, no. 7. Mid-December 1932. p. 354-355. Water and ice as refrigerants for air-conditioning discussed. Data on refrigeration loads in breweries and cold storage warehouses presented. Thermodynamic cycles for solid CO₂ production compared.

Refrigeration. (Cont'd)

Thermodynamics of CO₂ cycles. By A.B. Stickney. Refrigerating Engineering. v. 24, no. 6. December 1932. p. 334-342. Simple cycle; precooling cycle; Bleeder cycle; Bleeder - precooling cycle; Pressure snowmaking cycle; Binary cycle; Remarks and comparisons.

Water as a refrigerant. By John Everetts, Jr. Refrigerating Engineering. v. 24, no. 6. December 1932. p. 329-333. Great future possibilities for high temperature work, especially in air conditioning field. Considerable research and experimental work are now going on to perfect rotary compressor or other methods equally as efficient to do work.

Rope.

Rope testing. By J. Grant Dent. 1932. 1p. University of Minnesota. Agricultural Extension Division. Agricultural Engineering News Letter no. 9.

Sewage and sewage disposal.

Imhoff-tank effluent aerated to reduce load on filters. By W.R. Drury. Engineering News Record. v. 109, no. 25. December 22, 1932. p. 752. Air is collected after having passed through sewage and is used to ventilate trickling filters, thereby avoiding odors.

Silos.

Newer developments regarding silos and silage. By A.E. Perkins. Ohio Agricultural Experiment Station. Bimonthly bulletin no. 159. Nov. - Dec., 1932. p. 207-214. Little prospect or possibility that silo will soon be replaced by any other system of feed preparation.

Soils.

Influence of moisture upon the rapidity of decomposition of lowmoor peat. By Solman A. Waksman and E.R. Purvis. Soil Science. v. 34, no. 5. November, 1932. p. 323-336.

Physical properties of soil of interest to agricultural engineers. By L.D. Beaver. Agricultural Engineering. v. 13, no. 12. December 1932. p. 324-327. Description of several physical properties of soils; physical properties of soils involved in tillage; physical properties of soils involved in drainage.

Simple and rapid method for measuring the stickiness of soils. By George Bouyoucos. Soil Science. v. 34, no. 5. November 1932. p. 393-399.

Soil action under load shown by test. By Dimitri P. Krynine. Engineering News Record. v. 109, no. 26. December 29, 1932. p. 782-784. Movement of soil under test load disclosed by excavating vertical cut under loaded area and by observing soil movement and moisture condition, with analysis of determinations.

Straw.

Handling straw from the combine. By Frank P. Hanson. Agricultural Engineering. v. 13, no. 12. December 1932. p. 318-320, 323. General methods: 1. Reclaiming straw which has been left in windrows. 2. Reclaiming straw which has been bunched with standard combine bunchers. 3. Cutting straw high with combine so

Straw. (Cont'd)

that stubble may be mowed and handled about same as hay. 4. Threshing barged, stacked or bundled grain in feed lots or field. 5. Using extension carriers on combines to load straw on racks, feed directly into balers, or concentrate windrows. 6. Use extra large trailer type loose-straw bunchers. 7. Bale or bundle straw with combine baler attachments.

Stream flow.

Ohio stream flow. Part I - Areas of lakes and drainage basins; run-off records prior to 1921. By C.E. Sherman. 1932. 167p. Ohio Engineering Experiment Station. Bulletin no. 73. First extensive inventory of Ohio's surface waters.

Sugar beets.

Progress in beet-growing machinery. British Sugar Beet Review. v. 6, no.4. December 1932. p. 86. Lifting and loading; Drilling, singling and hoeing.

Sugar beet machine saves labor. Farmer. v. 50, no.21. October 29, 1932. p. 20. Combination beet harvester and topper is estimated to replace at least six or seven men and reduce cost of harvesting beets about \$8 per acre.

Temperature.

Inside surface temperatures of windows. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 641.

Study of the application of thermocouples to the measurement of wall surface temperatures. By A. P. Kratz and E. L. Broderick. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p. 635-638. Result of research conducted at University of Illinois in cooperation with A.S.H.V.E. Research laboratory.

Tires.

Air-tired tractor in record run. Implement and Tractor Trade Journal. v.47, no. 26. December 17, 1932. p. 10-11. Allis-Chalmers Model U covers 88 miles from Milwaukee to Chicago in 5 hours, with its run officially timed and checked.

Tractors.

Cooperative tractor catalog. 228 p. Implement and Tractor Trade Journal, 1932. Illustrated directory of tractors, tractor accessories and power farming machinery.

Proper care lengthens the life of the farm tractor. By A.E. Randall. Furrow. v. 37. Nov.-Dec., 1932. p. 4, 11. Clean tractor; Clean cooling system; Lubrication important; Flow is important; Fuel consumption.

Tractor for the small farm. Northwest Farm Equipment Journal. v. 46, no. 12. December 1932. p. 16. New farmall F-12 fits needs of farms of 100 acres or less.

Ventilation.

A.S.H.V.E. standard code for testing and rating steam unit ventilators. Heating, Piping and Air Conditioning. v. 4, no. 9. September 1932. p.645-648.

Barn ventilation pays. By John M. Larson. Electricity on the Farm. v. 6, no. 1. January 1933. p. 12-13. Unless barn is so constructed that temperature of at least 40 or 45° can be maintained it is too cold for comfort and almost impossible to do good job of ventilating.

Ventilation of animal shelters. By F.L. Fairbanks. Agricultural Engineering. v. 13, no. 12. December 1932. p. 321-323.

Walls.

New type garden wall of low cost. Building Economy. v, 8, no. 6. November-December 1932. p. 5. Lower courses reinforced, wall built without foundations other than piers. Brick laid diagonally and would require only 1-3/4 bricks per running foot in each course for main portion of wall.

Water heating.

Water-heater demands on system are not burdensome. By C. P. Randolph and L.F. Berg. Electrical World. v. 100, no. 22. November 26, 1932. p. 722-725. Field studies show diversities of demand appearing at substation to be as high as three to one and at distribution transformers between one and two for two-unit heaters with charging units on for ten, twenty and twenty-four hours.

Water power.

Romance of water and power. By Don J. Kinsey. Los Angeles Department of Water and Power, 1932. 39p.

Weeds.

Killing perennial weeds with chlorelates during winter. By W.C. Muenscher. 1932. 8p. Cornell University. Agricultural Experiment Station. Bulletin no. 542. Too expensive to be used on large areas. Practical method for rapid eradication of small patches of very noxious perennial weeds.

Welding.

Electric welding has rapidly gained ground in industry. Machinery. v. 39, no.5. January 1932. p. 323-328.

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